SUBMISSION INSTRUCTION NO. 18

PROPOSAL FOR PRESUMPTIVE REMEDIES (PPR) FOR REGULATED SANITARY, CDD, AND INDUSTRIAL LANDFILLS

Developed by

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Office of Waste Permitting
Groundwater
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1.0 APPLICABILITY OF INSTRUCTIONS

These instructions are applicable to all solid waste facilities conducting groundwater monitoring under the requirements contained in the Virginia Solid Waste Management Regulations (VSWMR), promulgated by the Virginia Waste Management Board, December 21st, 1988, as amended.

As allowed under 9 VAC 20-80-310.A.4, a Permittee may choose to submit a Proposal for Presumptive Remedy in lieu of conducting an Assessment of Corrective Measures. These Submission Instructions have been designed to address the content expected within a Proposal for Presumptive Remedy.

A Proposal for Presumptive Remedy may not be applicable for a facility when it has been documented that the contamination has migrated beyond the facility boundary, unless approval from the director has been granted consistent with 9 VAC 20-80-310 A 4 d. Even in cases where the plume of contamination is documented to be confined within the facility boundary, a presumptive remedy may not be applicable if site conditions are present, or the remedy would allow site conditions to develop in the future, that violate any provision of the State Water Law or the Waste Management Act.

In cases where the presumptive remedy is being proposed as a sole remedy and offsite contamination may be present, the regulations require the approval of the director for the use of presumptive remedy. In order to obtain the approval of the director the Permittee should provide a request to the director indicating the following at a *minimum*:

- Contamination may be present beyond the facility boundary and, consistent with 9 VAC 20-80-310 A.4.e, approval by the director is requested for the selection of presumptive remedy.
- The selected Presumptive Remedy will address the contamination beyond the facility boundary.
- There are no receptors present on the land adjacent to the facility.
- The Permittee owns the adjacent land.
- There is no onsite surface water downgradient of the source area (i.e. footprint of the waste).
- An acceptable risk assessment has been performed.
- Other information justifying the use of presumptive remedy as a sole remedy.

2.0 INTENT OF INSTRUCTIONS

If, after statistical analysis, it has been determined that one or more Table 5.1 constituents are detected at statistically significant levels above the established groundwater protection standard (GPS), the Permittee shall submit to the director an Assessment of Corrective Measures (ACM) Report, or a Proposal for Presumptive Remedy (PPR) Report.

The submission of such material is required within 180 days of the statistical determination. [9 VAC 20-80-310.A.1]. Completion of the PPR entails two separate but related actions. Preparing a PPR and determining the nature and extent of the release [VSWMR 9 VAC 20-80-300 B.3.g(1)(a); 9 VAC 20-80-300.C.4.e.(3)(a)]. The VSWMR specify that prior to submitting the PPR report required under 9 VAC 20-80-310.A.1, the Permittee shall determine the “nature & extent" of the release. The function of the Nature and Extent Study (NES) is to obtain sufficient site-specific data to develop an assessment of site-specific corrective measures or PPR [VSWMR 9 VAC 20-80-

300.B.3.g(1); 9 VAC 20-80-300.C.4.e(3)(a)]. Content of the NES is further discussed in Submission Instructions No. 15.

The PPR is an expedited program based on containment of contamination from a documented release from a solid waste management unit. These instructions have been developed to assist the Permittee in developing a PPR that provides the type of data likely to support the proposal.

The technical content of these instructions has been modeled, in part, after several existing references including:

- RCRA Correction Action Plan (Final) **[EPA 520-R-94-004]**,
- Corrective Measures for Releases to Groundwater from Solid Waste Management Units **[EPA 530-SW-88-020],**
- Corrective Action: Technologies and Applications **[EPA 625-4-89-020]**
- A Comparison of the RCRA Corrective Action and CERCLA Remedial Action Processes **[DOE/EH-0365]**,
- RCRA Corrective Action & CERCLA Remedial Action Reference Guide **[DOE/EH-0001]**,
- "Draft" Handbook of Groundwater Policies for RCRA Corrective Action **[EPA 530-D-00-001]**.
- Presumptive Remedy for CERCLA Municipal Landfill Sites **[EPA 540-F-93-035]**

Since many of these references were developed for RCRA Subtitle C and/or NPL facilities, the department has used them as a means of identifying the information that has previously proven successful in completing the requirements of the PPR. It is important to note that other program process data or reporting requirements contained in the sources listed above, which are not deemed applicable to the activities required under 9 VAC 20-80-310, have not been made part of these instructions.

These instructions have been developed as guidance, not a rule. They have not gone through public comment. They are designed to fit facility-specific conditions. These submission instructions are an outline of the *minimum* technical content that should be addressed within the PPR. When appropriate justification is provided additional information may be included in the PPR.

3.0 PURPOSE OF INSTRUCTIONS

The department believes developing PPR submission guidelines will:

- provide the minimum technical content of an PPR report,
- decrease internal department review time, and
- assist the regulated community with preparing technically complete submissions.

By providing consistency and decreasing the time of review, these instructions will reduce the time-span between detection of constituents at statistically significant levels above the established GPS, and the final implementation of a site specific Corrective Action Program.

4.0 REPORT FORMAT

While the technical findings of an NES are used for the completion of the PPR report, the VSWMR (9 VAC 20-80-300.B.3.g, 300.C.4.e.(3)(a), or 9 VAC 20-80-310) do not require that the two document types (NES & PPR) be combined as a single submission. The NES may be submitted as a stand-alone technical document using Submission Instructions No.15 as guidance.

In cases where the NES is submitted as part of the PPR, the headings may be altered to fit the format of the PPR presented in these Submission Instructions.

At a minimum, the PPR shall address each of the topics noted in these instructions and except as noted above, should follow the section format outlined in Table I of these instructions. The sections listed herein shall be considered standard technical content. Please note that in order to be considered complete, PPR submissions must contain the minimum technical content outlined in these instructions.

Additional sections beyond those listed in these submission instructions are allowed with appropriate justification. These instructions set no limit on the number or content of the additional report sections as long as the information included pertains to that required of a PPR.

The administrative and technical content to provide for each section of the PPR is briefly described on the following pages.

4.1 Cover Page – Provide the following information:

- Landfill Name
- Landfill location
- DEQ Permit #
- DEQ Region
- Name & Address of the Consultant
- Name & Address of the Permittee
- Date report submitted

4.2 Signature Page – This page must contain the signature & seal of a qualified groundwater professional certifying the content of the PPR report.

4.3 Table of Contents – Specify the order and organization of the report sections as outlined in Table 1 of these instructions.

4.4 Executive Summary – Provide a brief summary of the following:

- Date of initial GPS exceedance
- Description (locations) of impacted site wells
- Description of the vertical and horizontal extent of the impacted groundwater (defined during the NES)
- Discussion of chosen remedies, including the purpose of the remedy (i.e.; containment of leachate, gas, groundwater) and the technology used to achieve the remedy
- Discussion of public hearing results/comments received

4.5 Introduction – Discuss, in general terms, how the work performed pertaining to the PPR serves to:

- Characterize the environmental setting of the facility
- Evaluate the nature and the vertical and horizontal extent of the release of landfill constituents to groundwater from one or more portions of the waste management units (NES),
- Individually assess the effectiveness of one or more possible presumptive remedies based on the release(s) identified on site
- Collect data sufficient to characterize the risk posed by the release to human and other environmental receptors (the Risk Exposure and Analysis Modeling System [REAMS] is the recommended tool for quantitative risk assessment)

The Permittee should indicate that the PPR report was submitted in a format consistent with these submission instructions and applicable reference(s) in the VSWMR. Describe any report limitations (company specific language), as well as definitions for any technical or laboratory terminology used in the report.

4.6 Site Description – Since this topic should be covered in detail in the NES, the PPR should only contain a brief summary of the site location, monitoring well network, and hydrologic conditions affecting contaminant migration.

(1) Physical Setting Information

- Identify facility on USGS 7 ½-minute topographic map
- Include a copy of the topographic map as a Figure
- Describe general site topography and surface drainage,
- Identify adjoining land use types

(2) Aquifer Recognition

- Identify the nature of the uppermost aquifer (i.e. overburden, saprolite, bedrock)
- Identify the nature of the groundwater table (i.e. confined, semi-confined, unconfined). If the aquifer is of a karstic nature, describe the influence of conduit flow (and any structural control on the development of such conduits) on contaminant migration direction
- Define general depth to groundwater on site
- Include a Potentiometric map as a Figure

(3) Monitoring Well Network

- Identify all upgradient and downgradient monitoring wells within the Assessment or Phase 2 compliance network, and note which wells show impacts to groundwater above respective groundwater protection standards
- Identify each well on a facility site plan drawing, included as a Figure
- Delineate or otherwise discuss the extent of the release
- Include an updated groundwater monitoring plan which meets the requirements of 9 VAC 20-80-310 A 2 as a Appendix to the PPR.

4.7 Assessment of Risk - For the source area of a landfill, a quantitative risk assessment that considers all disposed chemicals, as well as the migration potential and

the potential additive effects of the chemicals is not necessary to establish a basis for action. A screening risk assessment may be sufficient to determine the basis for action if groundwater analytical data are already available that demonstrate one or more constituents exceed established groundwater protection standards. Presumptive remedies, by EPA definition, do not address exposure pathways outside of the source area (i.e. footprint of the waste). A more comprehensive risk assessment must be performed to determine whether remedial action is warranted beyond the source area. The PPR must provide a discussion of the results of the site-specific risk assessment at the solid waste boundary and at the facility boundary which includes the following:

(1) Information regarding groundwater and surface water data collection and assessment
(2) An Exposure Assessment including receptors, exposure route and exposure pathways.
(3) A Toxicity Assessment including the chemicals detected, screening data and rationale, cancer and non-cancer toxicity information.
(4) A Risk Characterization that includes cancer and non-cancer risks for each current or potential receptor by medium, exposure medium, exposure route, and exposure point.
(5) Indication of whether remedial action is warranted.

The Risk Assessment must be complete and contain sufficient data to support the conclusions made in order for the proposal for presumptive remedy to be approved, including cases where contamination is confined within the permitted facility boundary. Discuss the possible contribution of landfill gas migration on any volatile organic compounds found in the groundwater outside of the source area. Note whether the facility has a gas extraction system in place and whether or not the levels of organic constituents noted in historical groundwater data have any relationship to the installation of the various components of the gas control system. Discuss (in cases where no offsite wells have been tested) the relative potential risk for offsite impact from groundwater containing compounds at concentrations above their respective GPS.

Facilities that have surface water bodies located downgradient of the source area must address (including a risk assessment) impacts to aquatic plant life and biota. Since state water regulations require no impact to surface waters, even if risk can be shown to be at acceptable levels, any impacts may affect the applicants ability to justify the application of presumptive remedy alone.

For further information, see EPA guidance

"Presumptive Remedy for CERCLA Municipal Landfill Sites", EPA 540-F-93-035, September 1993.

"Rick Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments), Publication 9285.7-47, December 2001

4.8 Site Evaluation - A site evaluation signed by a qualified groundwater professional is required as part of the initial PPR and then again, once every three years following presumptive remedy implementation. Other timeframes may be required by the department based on the remedy selected [9 VAC 20-80-310 A a (2)]. The site evaluation must:

- Provide a discussion of how the presumptive remedy is performing including:

  - The prior Appendix 5.1 constituents that have been detected noting any increasing or decreasing trends. List (table format preferred) the Appendix 5.1 constituents detected in groundwater during groundwater monitoring activities. Highlight those constituents that have exceeded GPS at all points in the plume of contamination outside of the original groundwater monitoring network.
  - The length of time a point within the plume has been below GPS for any points within the plume that exceeded GPS at any time. Any points that have not statistically exceeded GPS for 3 or more years will be noted.
  - Provide a list of the actions required to complete the presumptive remedy. Note those actions that have been completed, those that are currently underway and those that have not been initiated.
- Provide a summary table of all current and historic groundwater data for all detected constituents.
- Provide an evaluation of the changes seen in the groundwater quality since presumptive remedy was implemented. Project when constituent levels statistically below the GPS will be achieved.

4.9 PPR Public Participation – Provide a summary of the results of the public meeting held to discuss the "draft" results of the PPR [9 VAC 20-80-310 A 5]. This section, at a minimum, shall contain the following information:

- Name of the newspaper in which the public meeting was advertised
- Dates on which the advertisement was published
- Name of the location in which the "draft" PPR was placed for public review
- Dates of both the beginning and end of the 30-day public comment period
- Date, time, and place in which the public meeting was held

The Appendix of the PPR shall contain the results of the public meeting, and copies of the newspaper advertisement and the written responses to any comments received during the public comment period.

4.10 Schedule - Provide a schedule for initiating and completing remedial activities [9 VAC 20-80-310 A 4 a(3)]. Remedies will be considered complete when the conditions in 9 VAC 20-80-310C 5 have been met.

4.11 Conclusions - Provide a brief summary of the following information, locations of impacted site wells, description of the extent of the impacted groundwater as defined during the NES, discussion of the presumptive remedy or remedies chosen, and a discussion of the public hearing results/comments received.

4.12 References - Provide a list of all materials used during the PPR process.

4.13 Figures – Provide at a minimum copies of the:

- USGS 7 ½-minute topographic map showing the site location
- Potentiometric surface contours and groundwater flow direction map with arrows showing flow direction for those sites with an aquifer type other than fractured bedrock.
- Site Plan drawing showing the plume boundaries for each separate constituent found above its GPS.

- Summary of risk assessment criteria.

4.14 Appendices – Provide at a minimum, copies of the following:

- Public Hearing Transcript
- Reponses to public comments
- Corrective action groundwater monitoring plan

5.0 SUBMISSION TIMELINES

The VSWMR require that a PPR be initiated within 90 days of noting a GPS exceedance. The 9 VAC 20-80-310.A.1 allows 180 days to elapse between noting a GPS exceedance and submitting a completed PPR. This timeframe includes the time to conduct public participation.

6.0 EXTENSIONS FOR SUBMISSIONS

9 VAC 20-80-310.A.1 allows a Permittee to request an extension to the 180-day ACM/ PPR submission timeline, and gives the director the authority to grant such a request for good cause. Good cause is undefined by the regulations and the decision to grant extensions will be made on a case by case basis, based on the technical information supplied by the Permittee. The most justifiable reason for requesting an extension would be if the initial results of the NES (which has no strict submission deadline) indicate the need to install additional NES wells to characterize the release. Such action would delay completion of the NES, and therefore push back the public participation period, and date of PPR completion. The Permittee should notify the department as soon as possible if initial results of the NES indicate further site activities will be required.

7.0 DEPARTMENT REVIEW

The PPR is submitted to the department for evaluation. If deficiencies in technical content are noted, the department may request modifications to the PPR.

8.0 REMEDY IMPLEMENTATION

The owner /operator may implement the remedy when the remedy is approved by the director, a public meeting has been conducted, and the facility permit has been amended to incorporate the PPR as a corrective action program [9 VAC 20-80-310 A. 4 e]. Based on the periodic evaluation required in 9 VAC 20-80-310 A 4 a, the owner or the director may determine that compliance is not being achieved through the remedy selected. Additional techniques may be required [9 VAC 20 80-310 A 4 c, 9 VAC 20-80-310 C 2] to remediate the site and the approved PPR may need to be updated or the department may require the submission of a full ACM.

TABLE 1